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10. FISH DIVERSITY IN ACHENKOVID RIVER, KERALA, INDIA

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Introduction

Western Ghats, located along the south-west coastline of the Indian subcontinent is extremely rich in its fish diversity and endemism (Gopalakrishnan and Ponniah 2000). The perennial river, Achenkovil flows through the central Travancore region in Kerala state and rises south of Devarmalai in the Western Ghats at an elevation of about 700 m. The river in its course is joined by a number of tributaries such as Kanai Ar, Kall Ar, Chittar, Kakkad Ar.

The river has an average flow of about 2,287 Mm³ and ultimately drains into the Vembanadu lake system.

Despite the occurrence of a large number of studies on the riverine fish fauna in Kerala (Biju *et al.* 1998, 1999a, b; Johnson and Soranam 2001; Kumar and Sushama 2001; Sushama 2003), there was paucity on the documentation of fish species and their distribution in Achenkovil river. Hence, the present study was undertaken to collect data on species richness and distribution of ichthyofauna in Achenkovil river basin.



Fig. 1: Map showing the sampling stations in Achenkovil River Basin, Kerala

MISCELLANEOUS NOTES

Table 1: Distribution of fish fauna in Achenkovil river collected during 2004-2005

S.No.	Order/ Family	Species	Stations			
			I	II	III	IV
1	Order: CLUPEIFORMES Family: Clupeidae	<i>Dayella malabarica</i> (Day)	-	+	+	+
2	Order: CYPRINIFORMES Family: Cyprinidae	<i>Amblypharyngodon melettinus</i> (Valenciennes)	+	+	+	+
3		<i>Amblypharyngodon microlepis</i> (Bleeker)	+	+	+	+
4		<i>Barilius bakeri</i> (Day)	+	+	+	+
5		<i>Barilius gatensis</i> (Valenciennes)	+	+	+	+
6		<i>Catla catla</i> (Hamilton-Buchanan)	-	+	+	-
7		<i>Cyprinus carpio</i> (Linnaeus)	-	+	+	-
8		<i>Danio malabaricus</i> (Jerdon)	+	+	+	+
9		<i>Garra mullya</i> (Sykes)	+	+	+	+
10		<i>Gonoproktopterus dubius</i> (Day)	-	+	+	-
11		<i>Labeo dussumieri</i> (Valenciennes)	-	+	+	-
12		<i>Labeo rohita</i> (Hamilton-Buchanan)	-	-	+	+
13		<i>Osteobrama bakeri</i> (Day)	-	-	+	-
14		<i>Parluciosoma daniconius</i> (Hamilton-Buchanan)	+	+	+	+
15		<i>Puntius amphibius</i> (Valenciennes)	+	+	+	+
16		<i>Puntius chola</i> (Hamilton-Buchanan)	-	-	+	+
17		<i>Puntius denisonii</i> (Day)	+	-	+	+
18		<i>Puntius fasciatus</i> (Day)	+	+	+	+
19		<i>Puntius filamentosus</i> (Valenciennes)	+	+	+	+
20		<i>Puntius jerdoni</i> (Day)	-	+	-	-
21		<i>Puntius sarana subnasutus</i> (Valenciennes)	-	+	-	+
22		<i>Salmostoma boopis</i> (Day)	+	+	+	+
23	Family: Balitoridae	<i>Balitora mysorensis</i> (Hora)	+	+	-	-
24		<i>Nemacheilus guentheri</i> (Day)	+	+	+	-
25		<i>Nemacheilus triangularis</i> (Day)	+	-	-	+
26	Family: Cobitidae	<i>Lepidocephalus thermalis</i> (Valenciennes)	+	-	-	-
27	Order: SILURIFORMES Family: Bagridae	<i>Horabagrus brachysoma</i> (Gunther)	-	-	-	+
28		<i>Mystus gulio</i> (Hamilton-Buchanan)	-	+	+	-
29		<i>Mystus keletius</i> (Valenciennes)	-	-	+	+
30		<i>Mystus malabaricus</i> (Jerdon)	+	+	+	+
31		<i>Mystus menoda</i> (Hamilton-Buchanan)	-	+	-	-
32		<i>Mystus ocellatus</i> (Valenciennes)	+	-	+	+
33	Family: Siluridae	<i>Ompok bimaculatus</i> (Bloch)	-	-	+	+
34		<i>Ompok malabarius</i> (Valenciennes)	-	-	+	+
35	Family: Sisoridae	<i>Glyptothorax housei</i> (Herre)	+	-	-	-
36	Order: CYPRINODONTIFORMES Family: Hemiramphidae	<i>Hyporhamphus limbatus</i> (Valenciennes)	-	-	+	+
37	Family: Belonidae	<i>Xenentodon cancila</i> (Hamilton-Buchanan)	-	+	+	+
38	Family: Aplocheilidae	<i>Aplocheilus lineatus</i> (Valenciennes)	+	+	-	+
39	Order: PERCIFORMES Family: Ambassidae	<i>Chanda nama</i> (Hamilton-Buchanan)	-	+	+	+
40		<i>Parambassis thomassi</i> (Day)	-	+	+	+
41	Family: Gerreidae	<i>Gerres filamentosus</i> (Cuvier)	-	-	-	+
42	Family: Nandidae	<i>Nandus nandus</i> (Hamilton-Buchanan)	-	-	+	+
43		<i>Pristolepis marginata</i> (Jerdon)	-	+	+	-
44	Family: Cichlidae	<i>Etroplus maculatus</i> (Bloch)	+	+	+	+
45		<i>Etroplus suratensis</i> (Bloch)	-	+	+	+
46		<i>Oreochromis mossambicus</i> (Peters)	-	-	-	+
47	Family: Gobiidae	<i>Awaous gutum</i> (Hamilton-Buchanan)	-	-	-	+
48	Family: Anabantidae	<i>Anabas testudineus</i> (Bloch)	+	-	-	+
49	Family: Channidae	<i>Channa marulius</i> (Hamilton-Buchanan)	-	-	+	+
50		<i>Channa punctatus</i> (Bloch)	-	-	+	-
51		<i>Channa striatus</i> (Bloch)	-	-	+	-
52	Family: Mastacembelidae	<i>Mastacembelus armatus</i> (Lecepede)	-	-	-	+

+ : presence; - : absence

Functional group assignation according to Talwar and Jhingran (1991)

Material and Methods

Fish were collected from four different stations, namely Thura, Konni, Pandalam and Payipad along the course of Achenkovil river from February 2004 to January 2005 (Fig. 1). The gears used were cast net and gill net. Catches from two types of gear were combined and fixed in 5% formaldehyde solution. All fish were identified using standard keys (Talwar and Jhingran 1991; Jayaram 1999).

Results and Discussion

In the present study, among the 52 species of fishes recorded and identified (Table 1), 39 species were typically freshwater fauna and 3 were typically marine fauna. Fish species those are able to inhabit both in estuarine and riverine habitat were also observed. Species such as *Barilius bakeri*, *Osteobrama bakeri*, *Horabagrus brachysoma*, *Glyptothorax housei*, *Pristolepis marginata* and *Dayella malabarica* were endemic to Kerala. While assessing the status of fish species as per IUCN, under the threatened category, *Dayella malabarica* and *Ompok malabarius* were critically endangered while *Gonoproktopterus dubius*, *Labeo dussumieri*, *Puntius denisonii*, *Horabagrus brachysoma*, *Mystus malabaricus*, *Mystus oculatus* and *Glyptothorax housei* were endangered, *Catla catla*, *Puntius jerdoni*, *P. chola*, *Puntius sarana subnasutus*, *Nemacheilus guentheri*, *Ompok bimaculatus*, *Nandus nandus* and *Pristolepis marginata* were vulnerable. The composition and abundance of fish species varied between the sampling sites. Smaller cyprinids such as *Puntius fasciatus*, *Nemacheilus triangularis* and *Puntius denisonii* were common in the upstream sampling stations like Station 1 and 2. While larger species like *Labeo* sp., *Cyprinus carpio* and *Catla catla* were common in the downstream stations like Stations 3 and 4. When the water

level recedes, brackish-water dwelling species like *Xenentodon cancila*, *Etroplus* sp., *Mastacembelus armatus* and *Awaous gutum* also frequently occurred in the downstream stations. Species like *Salmostoma boopis*, *Puntius filamentosus*, *Garra mullya*, *Danio malabaricus* were found to be distributed all along the river system.

Total species richness and abundance was lowest for Station 1. Only twenty-two species from a total of fifty-two were listed. Dominant species observed at this station included *Puntius fasciatus* and *Garra mullya*. Thirty species were recorded from Station 2. Maximum abundance was shown by *Salmostoma boopis*. Maximum species occurrence (thirty-eight) was seen at Station 3. Species such as *Puntius amphibius* and *P. filamentosus* occurred in higher density. The availability of different habitat types might attribute to an increase in species composition at this station. Thirty-seven species were recorded from Station 4. Maximum abundance was recorded for *Puntius amphibius* and *P. filamentosus*. Similarly, marine species like *Parambassis thomasi* were also found to be high. Habitat preference and adequate environmental conditions made this station a fish abundant area.

From the studies, it is clear that River Achenkovil is rich in terms of diversity and abundance of fish fauna. However, in the light of arising habitat destruction process such as sand mining day by day, proper management measures must be adopted to protect the existing faunal wealth.

ACKNOWLEDGEMENT

I thank Dr. P.K. Abdul Azis, Professor (Retd.), Department of Aquatic Biology and Fisheries, University of Kerala for encouragement.

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